

the Leonids in 1866, in which there was a larger proportion of brilliant meteors, many of them coming in flights of three to six at once, all near together; but with that exception the display of the Andromedes this year was the finest piece of celestial pyrotechny I have ever had the good fortune to witness. We seemed to stand under an encircling canopy of dropping lights.

Birstal Hill, Leicester, Nov. 28 F. T. MOTT

AN extraordinary meteoric display was visible here last night. I first observed it at 6.40 p.m., and was watching it at intervals for more than an hour later, when the sky became overclouded. Altogether the number of shooting-stars was immense. Unlike the correspondent of the *Daily News*, who observed a similar phenomenon at Naples the same night, I was unable to count the number per minute. Appearing suddenly, and often many at a time, in all parts of the heavens, from the zenith to the horizon, they quickly disappeared from view, the distance travelled not being more than a few degrees in any case. Some were much more luminous than others, and all in their passage through the air were followed by the usual trail of light.

E. F. BATES

Leicester, November 28

THOUGH densely cloudy during the afternoon of the 27th, the sky became clear here about 6.30 p.m., when great numbers of meteors were to be seen, falling at the rate of fully 60 per minute, many being of great brilliancy. During the evening their number gradually decreased, till towards 10 o'clock very few were visible. The sky then again became overcast.

PERCY T. INGRAM

Belvoir Gardens, Grantham, November 29

THE star-shower predicted by several astronomers was well seen here on Friday evening last. When first observed, at 5.30, the rate of fall was 25 per minute; the numbers, however, increased rapidly during the next half-hour, till, at 6 o'clock, more than 100 meteors were counted in a minute.

At 6.20 a marked decrease in the intensity of the shower was noted; but at 6.38 the numbers once more increased, till a rate of 70 per minute was attained; after this, however, they gradually diminished as the hours went on. It is right to mention that the numbers given above are those of the meteors seen by an observer looking towards the east; they do not represent the total number that fell at these two periods.

The radiant-point, as indicated by the position of several meteors which suddenly flashed out without sensibly changing their position, was close to  $\gamma$  Andromeda, or, more exactly, R.A.  $21^\circ$ , N.P.D.  $46^\circ$ .

Most of the meteors were mere "shooting-stars"; a large number, however, had brilliant phosphorescent trains, which continued to glow for several seconds after the meteors themselves had vanished. Occasionally one of the trains would break up into fragments, and in one instance a curious spiral form was assumed.

A special feature of the shower was its varying intensity, and that more particularly between 6 and 7 o'clock.

JAMES SMITON

Broughty Ferry, Dundee, November 30

OUR Paris Correspondent writes:—The shower of falling stars has been observed at a number of French stations—Toulouse, Central France, Tunis, and Algiers. The point of emanation was, in the case of some of them, between Andromeda and Cassiopeia. In Paris it was not observed, owing to the foggy state of the atmosphere, and no balloon observation having been tried.

The following letters on the meteors appeared in the *Times* of Saturday:—

Mr. T. G. Dyson, of 1, Rothesay Villas, Windsor, wrote on Friday night:—"I was fortunate in witnessing this evening from 6.15 to 6.40 a most magnificent shower of stars, which might be compared to a flight of swallows, with a lull of a few seconds between each flight. Although the sky was anything but clear—only stars of the larger magnitude being visible—the meteors were brilliant, and in many instances left a distinct trail behind them. The direction was principally from east to west, varying to north-west."

The Leicester Correspondent of the *Times* telegraphed last night:—"A remarkable display of meteors was witnessed in Leicestershire to-night from dusk until a late hour. The display was most brilliant towards the western horizon, the meteors falling in perpetual showers, with brilliant trails, like a very fine display of fireworks."

A Reuter telegram from Athens, dated November 27, says:—"A brilliant shower of meteors was observed here to-night."

A Newcastle-on-Tyne correspondent telegraphs:—"There was a splendid meteoric display here. I saw about 500 an hour. Radiating point Cassiopeia."

Prof. Pritchard, of the University Observatory at Oxford, telegraphs that he counted 251 meteors between 6.34 and 6.39 p.m., and 305 between 7.14 and 7.19.

IN case no one else may have reported the complete fulfilment of the prediction suggested by Lord Crawford's Dun Echt Circular allow me a few lines to do so.

I did not begin to observe systematically until nearly 8 p.m. (7h. 58m.), when I found that, confining my attention to one-third of the sky (south-south-east to west-north-west), and computing therefrom, meteors were falling at the rate of 33 a minute. Shortly after this they became more numerous, and from 8h. 5m. to 8h. 10m. they were falling at the rate of 56 a minute (nearly one a second), or more than 3000 an hour. From 8h. 30m. to 9h. 30m. the view was much hindered by cloud, but it was evident that the number was decreasing. From 9h. 30m. to 10h. the average fell to about 12 a minute, or scarcely a fifth of what it was at 8h. 5m.; and shortly after 10 p.m. the sky became entirely overcast.

I well remember the glorious shower in 1866. On that occasion the meteors were both larger and more numerous than they have been this evening, but occasionally they were very frequent—for example, at 7h. 59m. five were visible in less than two seconds (the precise period was one second and six-tenths).

G. J. SYMONS

62, Camden Square, N.W., November 27

In Paris, according to the *Times* Correspondent, the sky was overclouded all Friday night, but the meteor-shower was seen to advantage in the South of France, in Belgium, Germany, Spain, and Italy, as also in Tunis, where the natives were much startled. At Châtelherault the meteors were well seen. At Cologne, Dr. Klein counted 636 between 6 and 7 o'clock, though the sky was at times overclouded. Most of them moved very slowly and left a trail of light, which quickly disappeared. Four were large and brilliant enough to be styled fire-balls. From 7.30 to 8 he counted 309, from 8.30 to 9 there were 375, and from 9 to 9.30 there were 208. The sky then became cloudy. Not one can have reached the ground, for they must have burned out and dispersed in the upper atmosphere. At Munich the sky was perfectly clear, and the display was very striking.

#### THE LATE SIR WILLIAM SIEMENS

ON Thursday last the relations and friends of the late Sir William Siemens assembled in the Jerusalem Chamber of Westminster Abbey for the purpose of doing

honour to his memory by the unveiling of a memorial window, which has been contributed by members of the five engineering Societies with which Sir W. Siemens was associated in the Abbey. The day was chosen as being the second anniversary of the funeral service which was held in the Abbey previously to the interment of the great *savant* at Kensal Green Cemetery.

Among those present were Mr. Arnold Siemens, Miss Gordon, Dr. Werner Siemens, and Mr. Alexander Siemens. Of the Civil Engineers Sir Frederick J. Bramwell, F.R.S., President, Sir Charles H. Gregory, K.C.M.G., Mr. Bateman, F.R.S., Mr. Barlow, F.R.S., Sir J. W. Bazalgette, C.B., Mr. Preece, F.R.S., Sir R. Rawlinson, C.B., and others, besides representatives of other Societies, among them Admiral Sir R. Spencer Robinson, K.C.B., Dr. Percy, F.R.S., Sir Bernhard Samuelson, Sir Henry Bessemer, F.R.S., Prof. W. G. Adams, Sir F. A. Abel, C.B., Prof. D. E. Hughes, F.R.S., Prof. Ayrton, F.R.S., and Dr. Hopkinson, F.R.S.

The Dean opened the proceedings by a brief address. "It is not for me," he said, "to dwell for a moment on the signal services to the cause, not only of science, but still more the application of science to the well-being of mankind, that will be always associated with the name of Sir W. Siemens. But I may add my own personal testimony to the impression which the character of your friend and leader, for such in a wide range of subjects I may surely call him, made on all who came into contact with him. He was, as you know, and as I know, not only admired and honoured, he was beloved and deplored. May the window which we shall now uncover do its proper work. . . . And may it remind us and far-off generations of the achievements and character of him whose memory will henceforth be here linked with that of his illustrious brethren, whose names the floor on which we shall soon stand, and the walls beneath which we shall pass, proclaim and preserve—the Newton, the Herschel, and the Darwin, the Stephenson, the Locke, and the Brunel, the Barry, to which add the Gilbert Scott, and Street—who sleep, or are honoured hard by."

Sir F. Bramwell, who spoke as the President of the Civil Engineers, the senior of the Societies represented, then made some remarks on Sir W. Siemens's contributions to applied and pure science.

The window, which has been designed and executed by Messrs. Clayton and Bell under the direction of Mr. J. L. Pearson, is intended to illustrate the maxim "*Laborare est orare*." It consists of two lights with a sixfoil in its traceried head. Each of these lights is composed of three panels in vertical order. In the left-hand light appear ironsmiths, chemists, and agriculturists; in the other groups in corresponding positions show astronomers, artists, and the professor with his scholars. Between these groups are in all cases angels bearing labels inscribed with the words giving the key-note of the conception—namely, "*Laborare est orare*." In the sixfoil at the head of the window is a representation of the sun as the source of light, surrounded by the words, "*Dixit autem Deus fiant luminaria in firmamento coeli*," and by the various heavenly bodies from which light emanates or is reflected. At the base is the following inscription:—"In memory of Charles William Siemens, Knt., D.C.L., LL.D., F.R.S., Civil Engineer. Born 4 April, 1823; died 19 November, 1883. Erected as a tribute of respect by his brother Engineers."

#### NOTES

It is gratifying to be able to announce that a pension of 300*l.* a year has been conferred upon Prof. Huxley from the Civil List Fund. We are also much pleased to notice the admirable articles in the *Times* and other papers on the retirement of Sir Joseph Hooker and Prof. Huxley, indicating, as they certainly do, the general growth of scientific interest.

WE regret to learn of the death, in his 72nd year, of Prof. Thomas Andrews, F.R.S., the eminent chemist. We hope to be able to refer to his work in detail in our next number.

BOTANISTS all the world over, we are sure, will be glad to learn that Mr. W. T. Thiselton Dyer, C.M.G., F.R.S., has been nominated to succeed Sir Joseph Hooker in the Directorship of Kew Gardens.

OUR Paris Correspondent informs us of the death of M. Bouley, President of the Paris Academy of Sciences, who was to have held office until the first meeting of 1886. M. Bouley, who was born in Paris in 1814, died of heart disease, under which he had been labouring for many years. He was, during many years, Director of the Veterinary School of Alfort. He has published a large number of memoirs on physiological researches, and was a popular writer and an eloquent debater.

THE reports of observations of the total eclipse of the sun of August 7, 1869, made by parties under the direction of Prof. Coffin, Superintendent of the *American Nautical Almanac*, have recently been published by the authority of the Secretary of the Navy. All lovers of astronomy will regret to know that this late publication in full of observations made sixteen years ago is due to the failing health and sickness of Prof. Coffin. This is, however, the less to be regretted since pretty full reports were made by the individual observers at the time, and the important observations secured have in this way found their place among the records of eclipse phenomena. The illustrations which accompany the volume are very beautiful.

WE have received No. 15 of the professional papers of the Signal Service of the United States Army, containing a full account of Prof. Langley's researches on solar heat and its absorption by the earth's atmosphere, undertaken during, and in connection with, the Mount Whitney Expedition. Prof. Langley has already himself given an account in *NATURE* of the important results he thus obtained. A perusal of the volume, however, shows that all who are interested in this subject will do well to refer to the present volume and the more detailed accounts they will find there touching the various parts of the research. It is a monument of industry and skill and undaunted perseverance of which Prof. Langley may well be proud.

THE Christmas Lectures at the Royal Institution will be given by Prof. Dewar, on "The Story of a Meteorite" (with experimental illustrations), commencing on December 29. Courses of lectures will probably be given before Easter by Prof. R. S. Ball, Mr. R. S. Poole, Mr. C. T. Newton, Dr. A. Gamgee, Mr. W. C. Roberts-Austin, Prof. Boyd Dawkins, Prof. Tyndall, Mr. A. Geikie, Rev. C. Taylor, Mr. E. B. Poulton, and Mr. H. Grubb. The Friday Evening Meetings will begin on January 22, when a discourse will be given by Prof. Tyndall. Succeeding discourses will probably be given by Sir William Thomson, Mr. T. P. Teale, Prof. O. Reynolds, Mr. W. K. Parker, Mr. A. A. Common, Prof. A. Macalister, Mr. R. S. Poole, Mr. W. H. M. Christie, Mr. W. Anderson, Sir Henry Roscoe, and others.

THE curriculum of the Paris School of Ethnology (founded by M. Broca in 1876) for the current session embraces courses of lectures on zoological, general, and prehistoric anthropology, ethnology, medical geography, and the history of civilisation. The course on linguistic anthropology does not commence until the spring. On zoological anthropology Dr. Duval will lecture on anthropogeny and comparative embryology: the blastoderm and the first phases of development. In general anthropology, Dr. Topinard will take type and race: the first part analytical—the races of Europe from prehistoric times down to our own